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Contents

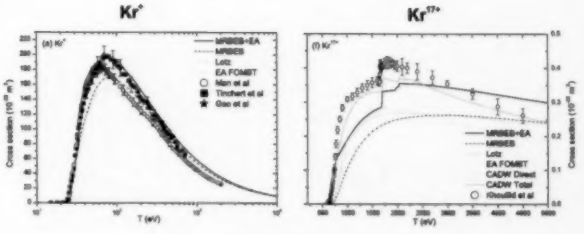
Regular Articles

1–8

Electron impact ionization cross sections of several ionization stages of Kr, Ar and Fe

M. Guerra, F. Parente, J.P. Santos

► We calculate total ionization cross sections by electron impact of Kr, Ar and Fe ions. ► Our analytical expression requires only one atomic parameter, the binding energy. ► Relativistic effects for high incident electron energies are accounted for. ► Excitation–autoionization cross sections were included.



9–14

A novel ion trap based tandem mass spectrometer for the spectroscopic study of cold gas phase polyatomic ions

James G. Redwine, Zachary A. Davis, Nicole L. Burke, Robert A. Oglesbee, Scott A. McLuckey, Timothy S. Zwier

● A novel tandem MS based instrument for the spectroscopic interrogation of cold gas phase ions has been constructed. ● A dual linear ion trap based triple quadrupole intersects a spectroscopic axis containing a 22-pole ion trap cooled to 10 K. ● A novel tandem MS based instrument has been constructed.

A novel mass spectrometer based instrument for cold ion spectroscopy featuring broadband dipolar ion manipulation and ion temperatures ~11 K.

15–22

Direct imaging of plant metabolites in leaves and petals by desorption electrospray ionization mass spectrometry

Bin Li, Steen Honoré Hansen, Christian Janfelt

● Direct DESI imaging is presented on plant material. ● Direct imaging with and without preceding removal of the cuticle wax layer. ● A new ternary spray solvent mixture shows better penetration through the cuticle. ● Imaging of very long chain fatty acids (VLCFAs) from the cuticle.

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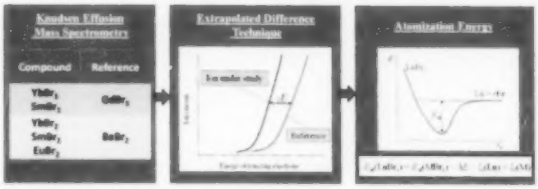
http://dx.doi.org/10.1016/S1387-3806(13)00224-8

23–28

Extrapolated difference technique for the determination of atomization energies of Sm, Eu, and Yb bromides

Dmitry N. Sergeev, Mikhail F. Butman, Vladimir B. Motalov, Lev S. Kudin, Karl W. Krämer

● Vaporization of $LnBr_3$–$GdBr_3$ and $LnBr_2$–$BaBr_2$ (Ln: Sm, Eu, Yb) systems was studied. ● Ionization efficiency curves for fragment M+ ions were measured. ● Extrapolated difference technique was developed for determination of atomization energies. ● Atomization energies of $LnBr_3$ and $LnBr_2$ (Ln: Sm, Eu, Yb) molecules were determined.

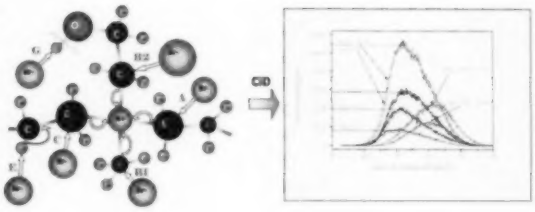


29–38

Competition between substitution and elimination reaction channels from fragmentation ratios of diquaternary ammonium bromide and formate ion pairs

Boguslaw P. Pozniak, Edyta Kuliszewska

● Gemini surfactants form ion pairs in the gas phase with bromide and formate. ● A collision initiates a reaction inside ion pair similar to as in the liquid. ● Formate pairs favor elimination while bromide substitution. ● Spacer size affects fragmentation ratio in a similar way regardless of kind. ● If there is labile hydrogen its transfer to anion is favored.

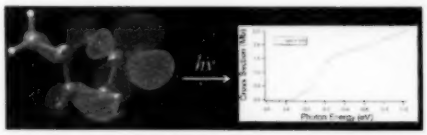


39–46

Absolute photoionization cross-sections of selected furanic and lactonic potential biofuels

Joseph Czekner, Craig A. Taatjes, David L. Osborn, Giovanni Meloni

● We presented a method to derive photoionization cross sections of daughter ions using photoionization mass spectrometry. ● The method is tested and confirmed with furanic compounds, for which literature values are available. ● Photoionization cross sections of four lactones and their dissociative ionization fragments are measured.

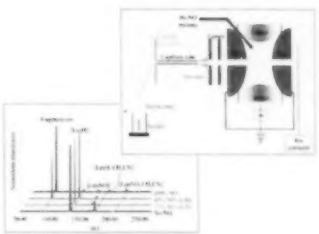


47–52

May interstellar leucine react with NO radicals present in interstellar/interplanetary medium? An ion-trap mass spectrometry study

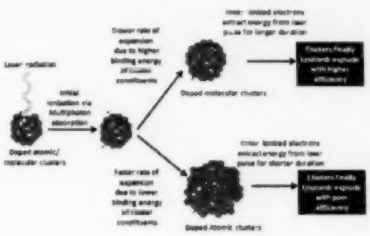
E.L. Zins, C. Pirim, L. Vettier, M. Chaboud, L. Krim

● Gas-phase reactivity involving radicals and amino-acids. ● Astrochemistry and exobiology. ● Kinetic study followed by ion-trap mass spectrometry.



53–58

Photoionization of atomic and molecular clusters doped with low ionization energy molecules: Effect of laser wavelength, intensity and cluster composition

Purav M. Badani, Soumitra Das, Pramod Sharma, Rajesh K. Vatsa

● Rate of cluster expansion increases with decreasing laser wavelength. ● Rate of cluster expansion decreases with increase in binding energy of cluster. ● Doped molecular clusters interact efficiently as compared to doped atomic clusters. ● Higher binding energy of doped molecular cluster facilitates efficient interaction.